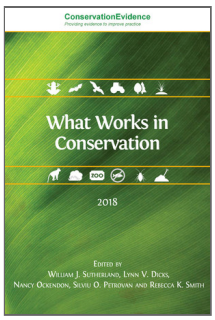

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What Works in Conservation 2018

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4.1 All farming systems

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4.1 All farming systems

Based on the collated evidence, what is the current assessment of the effectiveness of interventions for all farming systems?	
Beneficial	• Create uncultivated margins around intensive arable or pasture fields • Plant grass buffer strips/margins around arable or pasture fields • Plant nectar flower mixture/wildflower strips • Plant wild bird seed or cover mixture • Provide or retain set-aside areas in farmland
Likely to be beneficial	• Manage ditches to benefit wildlife • Manage hedgerows to benefit wildlife (includes no spray, gap-filling and laying) • Pay farmers to cover the costs of conservation measures • Provide supplementary food for birds or mammals
Unknown effectiveness (limited evidence)	• Connect areas of natural or semi-natural habitat • Increase the proportion of natural or semi-natural habitat in the farmed landscape • Make direct payments per clutch for farmland birds • Manage the agricultural landscape to enhance floral resources • Mark bird nests during harvest or mowing • Plant new hedges • Provide nest boxes for bees (solitary bees or bumblebees) • Provide nest boxes for birds • Provide other resources for birds (water, sand for bathing) • Provide refuges during harvest or mowing

No evidence found (no assessment)	• Apply 'cross compliance' environmental standards linked to all subsidy payments • Implement food labelling schemes relating to biodiversity-friendly farming (organic, LEAF marque) • Introduce nest boxes stocked with solitary bees • Maintain in-field elements such as field islands and rockpiles • Manage stone-faced hedge banks to benefit wildlife • Manage woodland edges to benefit wildlife • Plant in-field trees (not farm woodland) • Protect in-field trees (includes management such as pollarding and surgery) • Provide badger gates • Provide foraging perches (e.g. for shrikes) • Provide otter holts • Provide red squirrel feeders • Reduce field size (or maintain small fields) • Restore or maintain dry stone walls • Support or maintain low-intensity agricultural systems

Beneficial

Create uncultivated margins around intensive arable or pasture fields

Twenty studies (including one randomized, replicated, controlled trial) from seven countries found uncultivated margins support more invertebrates, small mammal species or higher plant diversity than other habitats. Four studies (including two replicated studies from the UK) found positive associations between birds and uncultivated margins. Fifteen studies (including one randomized, replicated, controlled trial) from four countries found naturally regenerated margins had lower invertebrate or plant abundance or diversity than conventional fields or sown margins. Six studies (one randomized, replicated, controlled) from three countries found uncultivated margins did not have higher plant or invertebrate

abundance or diversity than cropped or sown margins. *Assessment: beneficial (effectiveness 100%; certainty 63%).*

http://www.conservationevidence.com/actions/63

Plant grass buffer strips/margins around arable or pasture fields

Twenty studies (including two randomized, replicated, controlled studies) from four countries found grass margins benefited invertebrates, including increases in abundance or diversity. Nine studies (including two replicated, controlled trials) from the UK found grass buffer strips benefit birds, with increased numbers, diversity or use. Seven replicated studies (four controlled, two randomized) from two countries found grass buffer strips increased plant cover and species richness, a review found benefits to plants. Five studies (two replicated, controlled) from two countries found benefits to small mammals. Six (including three replicated, controlled trials) from two countries found no clear effect on invertebrate or bird numbers. *Assessment: beneficial (effectiveness 90%; certainty 65%).*

http://www.conservationevidence.com/actions/246

Plant nectar flower mixture/wildflower strips

Forty-one studies (including one randomized, replicated, controlled trial) from eight countries found flower strips increased invertebrate numbers or diversity. Ten studies (two replicated, controlled) found invertebrates visited flower strips. Fifteen studies (two randomized, replicated, controlled) found mixed or negative effects on invertebrates. Seventeen studies (one randomized, replicated, controlled) from seven countries found more plants or plant species on flower strips, four did not. Five studies (two randomized, replicated, controlled) from two countries found bird numbers, diversity or use increased in flower strips, two studies did not. Five studies (four replicated) found increases in small mammal abundance or diversity in flower strips. *Assessment: beneficial (effectiveness 100%; certainty 75%).*

http://www.conservationevidence.com/actions/442

Plant wild bird seed or cover mixture

Fifteen studies (including a systematic review) from the UK found fields sown with wild bird cover mix had more birds or bird species than other

farmland habitats. Six studies (including two replicated trials) from the UK found birds used wild bird cover more than other habitats. Nine replicated studies from France and the UK found mixed or negative effects on birds. Eight studies (including two randomized, replicated, controlled studies) from the UK found wild bird cover had more invertebrates, four (including two replicated trials) found mixed or negative effects on invertebrate numbers. Six studies (including two replicated, controlled trials) from the UK found wild bird cover mix benefited plants, two replicated studies did not. *Assessment: beneficial (effectiveness 100%; certainty 65%).*

http://www.conservationevidence.com/actions/594

Provide or retain set-aside areas in farmland

Thirty-seven studies (one systematic review, no randomized, replicated, controlled trials) compared use of set-aside areas with control farmed fields. Twenty-one (including the systematic review) showed benefits to, or higher use by, all wildlife groups considered. Thirteen studies found some species or groups used set-aside more than crops; others did not. Two found higher Eurasian skylark reproductive success and one study found lower success on set-aside than control fields. Four studies found set-aside had no effect on wildlife, one found an adverse effect. Two studies found neither insects nor small mammals preferred set-aside. *Assessment: beneficial (effectiveness 90%; certainty 70%).*

http://www.conservationevidence.com/actions/156

Likely to be beneficial

Manage ditches to benefit wildlife

Five studies (including one replicated, controlled study) from the UK and the Netherlands found ditch management had positive effects on numbers, diversity or biomass of some or all invertebrates, amphibians, birds or plants studied. Three studies from the Netherlands and the UK (including two replicated site comparisons) found negative or no clear effects on plants or some birds. *Assessment: likely to be beneficial (effectiveness 40%; certainty 45%).*

http://www.conservationevidence.com/actions/135

Manage hedgerows to benefit wildlife (includes no spray, gap-filling and laying)

Ten studies from the UK and Switzerland (including one randomized, replicated, controlled trial) found managing hedges for wildlife increased berry yields, diversity or abundance of plants, invertebrates or birds. Five UK studies (including one randomized, replicated, controlled trial) found plants, bees and farmland birds were unaffected by hedge management. Two replicated studies found hedge management had mixed effects on invertebrates or reduced hawthorn berry yield. *Assessment: likely to be beneficial (effectiveness 70%; certainty 50%).*

http://www.conservationevidence.com/actions/116

Pay farmers to cover the cost of conservation measures (as in agri-environment schemes)

For birds, twenty-four studies (including one systematic review) found increases or more favourable trends in bird populations, while eleven studies (including one systematic review) found negative or no effects of agri-environment schemes. For plants, three studies found more plant species, two found fewer plant species and seven found little or no effect of agri-environment schemes. For invertebrates, five studies found increases in abundance or species richness, while six studies found little or no effect of agri-environment schemes. For mammals, one replicated study found positive effects of agri-environment schemes and three studies found mixed effects in different regions or for different species. *Assessment: likely to be beneficial (effectiveness 60%; certainty 50%).*

http://www.conservationevidence.com/actions/700

Provide supplementary food for birds or mammals

Nine studies (two randomized, replicated, controlled) from France, Sweden and the UK found providing supplementary food increased abundance, overwinter survival or productivity of some birds. Two of the studies did not separate the effects of several interventions. Four studies (one replicated, controlled and one randomized, replicated) from Finland and the UK found some birds or mammals used supplementary food. Six replicated studies (three controlled) from Sweden and the UK found no clear effect on some birds or plants. *Assessment: likely to be beneficial (effectiveness 90%; certainty 50%).*

http://www.conservationevidence.com/actions/648

Unknown effectiveness (limited evidence)

Connect areas of natural or semi-natural habitat

All four studies (including two replicated trials) from the Czech Republic, Germany and the Netherlands investigating the effects of linking patches of natural or semi-natural habitat found some colonization by invertebrates or mammals. Colonization by invertebrates was slow or its extent varied between taxa. *Assessment: unknown effectiveness — limited evidence (effectiveness 0%; certainty 15%).*

http://www.conservationevidence.com/actions/579

Increase the proportion of semi-natural habitat in the farmed landscape

Of five studies monitoring the effects of the Swiss Ecological Compensation Areas scheme at a landscape scale (including three replicated site comparisons), one found an increase in numbers of birds of some species, two found no effect on birds and three found some species or groups increasing and others decreasing. *Assessment: unknown effectiveness — limited evidence (effectiveness 20%; certainty 20%).*

http://www.conservationevidence.com/actions/145

Make direct payments per clutch for farmland birds

Two replicated, controlled studies from the Netherlands found per clutch payments did not increase overall bird numbers. A replicated site comparison from the Netherlands found more birds bred on 12.5 ha plots under management including per-clutch payments but there were no differences at the field-scale. *Assessment: unknown effectiveness — limited evidence (effectiveness 0%; certainty 20%).*

http://www.conservationevidence.com/actions/146

Manage the agricultural landscape to enhance floral resources

A large replicated, controlled study from the UK found the number of long-tongued bumblebees on field margins was positively correlated with the number of 'pollen and nectar' agri-environment agreements in a 10 km

square. *Assessment: unknown effectiveness — limited evidence (effectiveness 40%; certainty 10%).*

http://www.conservationevidence.com/actions/362

Mark bird nests during harvest or mowing

A replicated study from the Netherlands found that marked northern lapwing nests were less likely to fail as a result of farming operations than unmarked nests. *Assessment: unknown effectiveness — limited evidence (effectiveness 20%; certainty 15%).*

http://www.conservationevidence.com/actions/148

Plant new hedges

Two studies (including one replicated trial) from France and the UK found new hedges had more invertebrates or plant species than fields or field margins. A review found new hedges had more ground beetles than older hedges. However, an unreplicated site comparison from Germany found only two out of 85 ground beetle species dispersed along new hedges. A review found lower pest outbreaks in areas with new hedges. *Assessment: unknown effectiveness — limited evidence (effectiveness 60%; certainty 25%).*

http://www.conservationevidence.com/actions/538

Provide nest boxes for bees (solitary bees or bumblebees)

Ten studies (nine replicated) from Germany, Poland and the UK found solitary bee nest boxes were used by bees. Two replicated trials from the UK found bumblebee nest boxes had very low uptake. Two replicated studies found the local population size or number of emerging red mason bees increased when nest boxes were provided. A replicated trial in Germany found the number of occupied solitary bee nests almost doubled over three years with repeated nest box provision. *Assessment: unknown effectiveness — limited evidence (effectiveness 90%; certainty 38%).*

http://www.conservationevidence.com/actions/80

Provide nest boxes for birds

Two studies (including one before-and-after trial) from the Netherlands and the UK found providing nest boxes increased the number of clutches or breeding adults of two bird species. A replicated study from Switzerland

found nest boxes had mixed effects on the number of broods produced by two species. Eight studies (six replicated) from five countries found nest boxes were used by birds. A controlled study from the UK found one species did not use artificial nest sites. Three replicated studies (one paired) from the UK and Sweden found box location influenced use or nesting success. *Assessment: unknown effectiveness — limited evidence (effectiveness 30%; certainty 23%).*

http://www.conservationevidence.com/actions/155

Provide other resources for birds (water, sand for bathing)

A small study in France found grey partridge density was higher in areas where water, shelter, sand and food were provided. *Assessment: unknown effectiveness — limited evidence (effectiveness 0%; certainty 1%).*

http://www.conservationevidence.com/actions/117

Provide refuges during harvest or mowing

A replicated study from France found mowing refuges reduced contact between mowing machinery and unfledged quails and corncrakes. A replicated controlled study and a review from the UK found Eurasian skylark did not use nesting refuges more than other areas. *Assessment: unknown effectiveness — limited evidence (effectiveness 20%; certainty 11%).*

http://www.conservationevidence.com/actions/147

No evidence found (no assessment)

We have captured no evidence for the following interventions:

- Apply 'cross compliance' environmental standards linked to all subsidy payments
- Implement food labelling schemes relating to biodiversity-friendly farming (organic, LEAF marque)
- Introduce nest boxes stocked with solitary bees
- Maintain in-field elements such as field islands and rockpiles
- Manage stone-faced hedge banks to benefit wildlife
- Manage woodland edges to benefit wildlife
- Plant in-field trees (not farm woodland)

- Protect in-field trees (includes management such as pollarding and surgery)
- Provide badger gates
- Provide foraging perches (e.g. for shrikes)
- Provide otter holts
- Provide red squirrel feeders
- Reduce field size (or maintain small fields)
- Restore or maintain dry stone walls
- Support or maintain low intensity agricultural systems